REVIEW MEMORANDUM - PROPOSED PERMIT
Regulation No. 30 (TITLE V) PROPOSED OPERATING PERMIT
The Premcor Refining Group, Inc.

4550 Wrangle Hill Road
Delaware City, Delaware 19706
PERMIT: AQM-003/00016 - Part 3

MEMORANDUM SETUP:

This memorandum constitutes Part 3 of the technical and regulatory review of an application submitted by The Premcor Refining Group, Inc. ("Premcor" or "Company") for a Regulation No. 30 (Title V) permit. It's purpose is to describe the emission units and applicable requirements in support of the attached proposed Title V Operating Permit (Part 3) for the above facility. The memorandum is setup in the following format:

I. Glossary of Abbreviations and Acronyms Used

II. Background
Identification of Emission Units
Chronology of Correspondence

III. General
Applicable Requirements applicable to all emission units at the facility

IV. Emission Unit
Process Description
Applicable Requirements
Technical/Regulatory Review/Compliance Determination Methodology
Non-Applicable Requirements

V. Future Applicable Requirements

VI. Compliance Schedule

VII. Permit Shield

The applicable requirements as they pertain, based upon a technical and regulatory review, to the emission units identified by the Company are discussed in the remainder of this memorandum. The regulatory review will indicate those applicable requirements that are "state only enforceable." All other applicable requirements unless otherwise indicated are both state and federally enforceable.

The inherent complexity of this facility coupled with the fact that the majority of process units are major sources themselves, has necessitated this permit to be structured in several parts. Accordingly, the attached operating permit- Part 3, satisfying the requirements of Regulation No. 30, covers only a partial list of processes. The processes covered by the permit are discussed in this memo. They are labeled Sections A through D in Table 1 beginning on page 4.

I. Glossary of Abbreviations and Acronyms Used

Air Quality Management	AQM
Alkylation Unit	ALKY
Ambient Air Quality Standards	AAQS
Baghouse	BG
Barrels per Hour	BPH
Barrels per Day	BPD
Barrels per Year	BPY
Batch Process	BP
Best Available Control Technology	BACT
Carbon Canister	CC
Carbon monoxide Boiler	COB
Catalytic Hydrodesulfurizer Unit	CHU
Clean Air Act Amendments	CAAA
Code of Federal Regulations	CFR
Continuous Catalyst Regeneration	CCR
Continuous Emissions Monitoring System	CEMS
Continuous Emissions Rate Monitoring System	CERMS
Crude Unit	CU
Cylinder Gas Audit	CGA
Delaware City Power Plant	DCPP
Department of Natural Resources and Environmental Control	DNREC
Diethanolamine	DEA
Diglycolamine	DGA
Electrostatic Precipitator	ESP
Emergency Tail Gas Treatment Unit	ETGT Unit
Emissions Offset Program	EOP
Ether Plant	EP
Ethyl Tertiary Butyl Ether	ETBE
Excess Emissions Report	EER
Facility Wide Requirement	FWR
Fluid Catalytic Cracking Unit	FCCU
Fluid Coking Unit	FCU
Frozen Earth Storage	FES
Good Engineering Practice	GEP
Hazardous Air Pollutant	HAP
Hydrocracker Unit	HCU
Hazardous Organic NESHAP	HON
Hydrogen Plant	HP
Lowest Achievable Emission Rate	LAER
Leak Detection and Repair	LDAR
Marine Vapor Recovery	MVR
Material Safety Data Sheets	MSDS
Maximum Achievable Control Technology	MACT
Methanol Plant	MP

Methyl tertiary butyl ether	MTBE
National Ambient Air Quality Standard	NAAQS
National Emission Standards for Hazardous Air Pollutants	NESHAP
New Source Performance Standards	NSPS
New Source Review	NSR
Olefins Plant	OP
Polymerization Unit	POLY
Potential to Emit	PTE
Prevention of Significant Deterioration	PSD
Reasonably Available Control Technology	RACT
Refinery Flare System	RFS
Refinery Gas Plant	RGP
Refinery Tank Farm	RTF
Relative Accuracy Test Audit	RATA
Selective Hydrogenation Unit	SHU
Shell Claus Offgas Treatment Unit	SCOT Unit
Spent Caustic Stripper	SCS
Stack Gas Scrubber	SGS
Sulfur Recovery Area	SRA
Synthetic Organic Chemical Manufacturing Industry	SOCMI
Tertiary amyl methyl ether	TAME
Tank with fixed cone roof	TC
Tank with floating roof	TF
Thermal desorption unit	TDU
Trash Incinerator	TI
Vapor combustion unit	VCU
Vapor Recovery Unit	VRU
Volatile Hazardous Air Pollutant	VHAP
Volatile Organic Compound	VOC
Waste Water Treatment Plant	WWTP

II. Background:

The Premcor Refining Group, Inc. owns and operates a petroleum refinery (SIC Code 2911) located on a 5,000 acre tract in Delaware City and between US Route 13 and Delaware Route 9. The refinery has the potential to emit greater than 25 tons per year NO_x and VOCs, greater than 100 tons per year SO_2, greater than 100 tons per year CO, and greater than 25 tons per year hazardous air pollutants (HAPS) listed in Section 112(b) of the CAAA of 1990. Therefore, the refinery is subject to Regulation No. 30.

The refinery located in Delaware City was owned by Star Enterprises at the time the Title V application was submitted to the Department. On July 1, 1998, Shell Oil Company, Saudi Refining, Inc., and Texaco Inc. formed Motiva Enterprises LLC, combining the major elements of Shell's and Star's eastern and southern refining and marketing businesses. The ownership of Star Enterprise was transferred to Motiva Enterprises LLC in October 1998. On May 1, 2004, Motiva Enterprises LLC (Motiva) was purchased by The Premcor Refining Group, Inc. This Regulation No. 30 (Title V) permit is based on permit application, and subsequent revisions, submitted by Motiva, and the Regulation No. 2 permits issued by the Department to Motiva. Due to the ownership transfer on May 1, 2004, any reference to Motiva in such permit applications and permits, and in

this Title V permit, is a reference to The Premcor Refining Group, Inc.

The Premcor Refining Group, Inc. (hereinafter "Premcor") owns and operates the Delaware City Power Plant (DCPP) that originally consisted of three (3) Riley Stoker Boilers and one (1) Foster Wheeler Boiler to produce and supply steam and electric power to the refinery. On May 29, 1997, Premcor submitted a construction permit application to construct a Repowering Project enabling the refinery to produce a low Btu synthesis gas (syngas) to be fired in two new combustion turbines using the Integrated Gasification Combined Cycle (IGCC) technology and in one existing boiler.

The main thrust of the Repowering Project is to produce a low Btu syngas from the high sulfur coke in two Texaco gasifiers where a slurry of petroleum coke and flux is gasified. The new gasifiers require gas cooling equipment, clean up equipment, and a dedicated flare for situations when upset conditions occur. In a major departure from the existing facility, the syngas is desulfurized before it is combusted in the combustion chambers of two General Electric Combined Cycle Gas Turbines Units (CCUs) that produces both electricity and steam. Removal of particulate matter from, and the desulfurization of, the raw syngas is accomplished by scrubbing with water followed by cooling in a low temperature heat exchanger and finally by absorption of the sulfur bearing acid gas in an amine scrubbing unit. The clean syngas is combusted in the CCUs that drive two generators each rated at 90 MW nominal. The hot exhaust from the CCUs passes through two heat recovery steam generators (HRSGs) that produce steam for power generation as well as for refinery use. A small amount of surplus electricity generated is sold to the grid.

Air pollution emissions from the Repowering Project can be classified under two categories, i.e., point source emissions from combustion equipment and process vents, and fugitive emissions. Because the project consists of numerous processes, this regulatory and technical review has been structured to address each process separately. The regulatory review of each process begins with a process description followed by identification of all applicable requirements and determination of the standards with which the process must comply. The technical review addresses the basis for these emission limits and the appropriate monitoring, record keeping and reporting requirements that go with each process. Table 1 is a summary of all the processes in the refinery. Note that Unit Nos. 50, 80, 82 and 84 constitute the Repowering Project covered by this permit.

Table 1: Refinery Process Units

Unit No.	Memo Section	Description of Process Equipment and Emissions Units
10	--	Waste Water Treatment Plant (WWTP), Vapor Combustion Unit (VCU), Thermal Desorption Unit (TDU), and the Gasoline Dispensing (GD) Facility
15	--	Marine Piers for product loading and crude receiving and two ground level flares
21	--	Crude Unit (CU) consisting of Atmospheric and Vacuum Heaters (21-H-701 and 21-H-2), Sour Water Treater (SWT), and Crude Coker Gasoline Merox Treater
22	--	Fluid Coking Unit (FCU) consisting of Coker Feed Tank Heater (40-H-1), FCU Reactor, FCU Burner, FCU Scrubber, Gas Plant Fractionator, Start Up Air Heater (22-H-1), Selas Steam Superheater (22-H-2), FCU Carbon Monoxide Boiler (COB) (22-H-3), Back Up Incinerator (22-H-4) and Coke Storage and Handling

Unit No.	Memo Section	Description of Process Equipment and Emissions Units
23	--	Fluid Catalytic Cracking Unit (FCCU) consisting of Start Up air Heaters (23-H-1A/B), Feed Pre-heater (23-H-2), Catalyst Storage and Handling Equipment, FCCU Riser, FCCU Reactor, FCCU Regenerator and FCCU COB (23-H-3)
24	--	Gas Plant consisting of the Diglycol Amine (DGA) Treater and the Alkylation Unit Merox Treater
25	--	Catalytic Reformer consisting of two trains (25-H-1A/B)
26	--	Polymerization Unit consisting of the Polymerization Process and the Polymerization Unit Merox Treater
27	--	Alkylation Unit
28	--	Sulfur Recovery Area consisting of Claus Units SRU I and SRU II, the Shell Claus Offgas Treatment Units I and II with Waste Heat Boilers, and the Stack Incinerators.
29	--	Hydrodesulfurization Unit consisting of 5 trains with process heaters (29-H-2 through 29-H-9 and 29-H-101)
32	--	Tetra Unit consisting of Tetra Feed Heater (32-H-101), Feed Preparation Column Bottoms Heater (32-H-102), Tetra Unit Heater (32-H-103) and the Benzene Transfer Operations and Benzene Storage, the Toluene Process, and the Aromatics Fractionation Process
33	--	Selective Hydrogenation Unit consisting of the Selective Hydrogenation Process, the Start Up Heater 33-H-1 and the Reboiler Heater 33-H-2.
34	--	Olefins Plant consisting of process, loading operations and Olefins Unit Reboiler (34-H-101)
36	--	Hydrocracker Unit consisting of the Hydrocraker feed Heater (36-H-1), the Hydrocraker Vacuum Column Reboiler (36-H-2) and the Hydrocraker Fractionator Reboiler (36-H-3)
37	--	Hydrogen Plant consisting of the Carbon Drum Vent which vents to the flare and the Process Heater (37-H-1)
40	--	Refinery Tank Farm consisting of various storage tanks categorized under 11 groups and the Frozen Earth Propane Storage
41	--	Methanol Plant consisting of the Methanol production process, loading operations and the Process Heater (41-H-1/41-H-10) and start up heater 41-H-8
42	--	Continuous Catalyst Regeneration (CCR) Reformer consisting of the Reforming Process, the CCR Platform Heater (42-H-1,2,3) and the CCR Reformer Reboiler (42-H-7)
43	--	Ether Plant
45	--	Utilities consisting of the Flare System, Spent Caustic Stripper, Ammonia Storage and the Boiler Feed Water Treatment Plant
80	A	Delaware City Power Plant (DCPP) Boilers 1, 2, 3 and 4 (80-1, 80-2, 80-3 and 80-4).

Unit No.	Memo Section	Description of Process Equipment and Emissions Units
11/12/13	--	Unit 11 consists of three scrubber trains and reheaters 11-H-1, 2, 3 with wet ESPs. Unit 12 consists of the chemical regeneration section. Unit 13 is the Sulfuric Acid Plant.
82	B	Two Texaco Gasifiers (82-1a and 82-2a) and two Gas Coolers (82-1b and 82-2b).
82	C	Amine Acid Gas Removal System 82-3, Syngas Flare 82-4.
50	C	Three-Cell Linear Mechanical Draft Evaporative Cooler.
84	D	Combined Cycle Gas Turbine Units (CCUs) 84-1 and 84-2.
99	--	Degreasers
FWR	E	Facility Wide Requirements

The Company's Title V application was signed by Mr. P. M. Laabs, the previous Plant Manager of the facility, who met the requirements of being a "Responsible Official" as defined in Regulation No. 30, Section 2. Due to the ownership transfer to Premcor, the representations and responsibilities of the previous Plant Manager pertaining to this Title V permit are now transferred to Mr. Michael Polluaf, the Refiney Manager, who meets the requirements of being a "Responsible Official" as defined in Regulation No. 30, Section 2.

The facility is subject to the requirements of Section 112(r) of the 1990 Clean Air Act Amendments and has registered with the State of Delaware "Regulations for the Management of Extremely Hazardous Substances."

The facility has paid applicable fees associated with Regulation 30.

Chronology of Correspondence

Date	Description
	Memorandum from Ravi Rangan to Robert Haynes (Hearing Officer) submitting responses to second round of public comments on the draft Title V permit.
10/22/04	Comments from Premcor on the draft permit received during the second public comment period..
9/29/04	Public notice announcing commencement of the second public comment period regarding the draft Title V permit.
9/29/04	Memorandum from Ravi Rangan to Robert Haynes (Hearing Officer) submitting responses to public comments on the draft Title V permit.
8/18/04	Comments from Mid-Atlantic Environmental Law Center and Sierra Club on the draft permit received during the public hearing.
7/25/04	Notice of public hearing to be held on 8/18/04.
6/17/04	Comments from EPA on the draft permit.

Date	Description
6/14/04	Comments from Premcor on the draft permit.
6/10/04	Comments from Mid-Atlantic Environmental Law Center and Sierra Club on the draft permit and a request for a public hearing.
5/11/04	Notifications to EPA, adjacent states (PA, NJ, MD and VA) and Premcor regarding availability of the draft Title V permit and commencement of the public comment period.
5/11/04	Public notice regarding availability of the draft Title V permit and commencement of the public comment period.
2/11/04	AQM-1001 Series Application (Revision 8) signed by Franklin R. Wheeler
12/11/03	Letter from Michael Gritz to Robert Taggart requesting 9-month operating experience after construction of Boiler 2 to propose individual emission limits for CCUs and Boilers 1 and 3.
11/6/03	Letter from Richard Strouse to Robert Taggart containing Premcor's comments on the pre-notification draft Title V (Part 3) operating permit.
10/30/03	Comments via e-mail from Ashok Gupta to Ravi Rangan regarding emissions and operational limits for Syngas Flare 82-4.
10/10/03	Letter with Pre-notification Draft Permit from Robert Taggart to Franklin Wheeler
9/3/03	Email response from Robert Wojewodzki to Douglas Toothman regarding No. 6 oil combustion
8/18/03	Email from Douglas Toothman to Robert Wojewodzki regarding No. 6 oil combustion
7/28/03	Letter from Michael Gritz to Ravi Rangan
7/10/03	Letter from Michael Gritz to Ravi Rangan
10/23/02	Secretary's Order No. 2002-A-0055 and supporting documents
8/27/02	AQM-1001 Series Application (Revision 7) signed by Franklin R. Wheeler
7/19/02	Letter from Michael Gritz to Robert Taggart
6/28/02	AQM-1001 Series Application (Revision 6) signed by Jeffrey G. Grant
4/30/02	Letter to Robert Taggart with submittal of Form AQM-2 application and attachments for Boiler No. 2 signed by Franklin Wheeler
4/2/02	Settlement Agreement signed by Secretary Nicholas A. DiPasquale
12/31/01	Administrative Penalty Assessment and Secretary's Order No. 2001-A-0053
3/7/01	Secretary's Order No. 2001-A-0009 and supporting documents
12/19/96	AQM-1001 Series Application signed by PM Laabs

Table 2 shows all the emission points within the Repowering Project with a description of the emission unit. It also identifies the applicable regulations for each emission unit.

Table 2: Emission Unit, Point(s), and Identification of Applicable Regulations:

Emission Unit	Emission Point	Source Description	Applicable Regulations
Boilers (80)	80-1	Boiler Nos. 1, 2 and 3	2; 3; 4; 8; 12; 14; 17; 19; 39
		Boiler No. 4	2; 3; 4; 8; 12; 14; 17; 19; 38; 39; 40 CFR 72
Gasification (82)	Fugitives	Two Texaco gasifiers, two associated gas coolers	2; 3; 24 § 29; 40 CFR 60 Subpart VV
	82-1	Amine Acid Gas removal system	2; 3; 14; 17; 19
	82-2	Syngas Flare	2; 3; 40 CFR 60 Subpart A; EPCRA Section 304
Cooling Tower (50)	50	Three-cell linear mechanical draft evaporative cooler	5
CCUs (84)	84-1 & 84-2	Two combined cycle units each consisting of one gas turbine and associated heat recovery steam generator with a natural gas-fired duct burner	2; 3; 4; 8; 12; 14; 17; 19; 20; 25; 39; 40 CFR 60 Subpart Db; 40 CFR 60 Subpart J; 40 CFR 60 Subpart GG

Note: The general requirements in subpart A of 40 CFR part 60 (NSPS) are applicable for NSPS affected sources. The general applicability requirements of NSPS have been referenced in the permit for the NSPS affected sources.

In response to a comment from Premcor on the draft permit, the three-cell linear mechanical draft evaporative cooler is listed in this permit as Emission Unit 50 even though the various revisions of the Title V permit application for this facility identified this source as part of Emission Unit 82. The renumbering of this source to Emission Unit 50 does not affect the requirements applicable to this source or any other aspect of this permit. Emission Unit 50 does not consist of any other source.

III. General:

Applicable Requirements corresponding to all emission units (including insignificant activities) at the facility:

Table 3: Facility Wide Applicable Requirements

Applicable Requirement	Condition Identification in Proposed Title V Operating Permit and Description	
	Condition Identification	**Description**
Regulation No. 3	Condition 2(b)(7)	None proposed
Regulation No. 14	Section 2.1 is applicable facility wide	All units with stacks are subject to an opacity limitation. The power plant has COMS installed which will be used for compliance demonstration. The CCU's have the potential to exceed the opacity limitation during fuel transfers and during start-up and shutdowns. Therefore, it is reasonable to require the Company to make qualitative opacity observations on a daily basis and conduct visible emissions evaluations for a given process whenever these observations indicate a likelihood of opacity occurrences. For all the other units, i.e., those not specifically identified in this Table, a facility wide opacity condition is included in Condition 3 Table 1.e.3.
Regulation No. 17	Section 2.2 - Condition 3(b)(1)(ii)	None proposed
	Section 7 - Condition 3(c)(2)(iv)	None proposed
Regulation No. 19	Section 2.1 - Condition 3 Table 1.e.2	This Title V permit condition is state enforceable only and is applicable on a facility wide basis.

As part of the Repowering Project the Company conducted a modeling analysis by running the Version 96113 of the Industrial Source Complex Short Term Model (ISCST3) using dispersion coefficients for a rural setting and good engineering practice stack height. All potential sources of regulated criteria pollutants at the refinery were included in the modeling analysis. Appropriate background concentrations developed from the Premcor Refinery ambient air monitoring program were added to the modeled impacts to calculate an aggregate concentration which was then compared to the appropriate standard. The entire State of Delaware is classified as a Class II area. Table 4 is a summary of the modeling analysis.

Table 4: Modeling Analysis Results

Pollutant	Averaging Period	NAAQS $\mu g/m^3$	Background $\mu g/m^3$	Maximum Concentration $\mu g/m^3$	Percentage of NAAQS
SO_2	3-hour	1,300	303	581	28.4
	24-hour	365	86	171	70.4
	Annual	80	16	21	46.3
PM_{10}	24-hour	150	52	72	83
	Annual	50	22	9.7	63.4

Pollutant	Averaging Period	NAAQS $\mu g/m^3$	Background $\mu g/m^3$	Maximum Concentration $\mu g/m^3$	Percentage of NAAQS
TSP	24-Hour	150	52	94	97.3
	Annual	60	22	12.8	58
CO	1-hour	40,000	15,577	1,430	42.5
	8-hour	10,000	4,322	332	46.5
NO_x	Annual	100	31	14	45

This modeling analysis indicates that there are no adverse impacts to ambient air quality as a result of permitted refinery operations.

IV. **Emission Units**:

A. **Boilers 1, 2, 3 and 4 (Unit 80)**

The Emissions Unit 80 consists of four boilers constructed in the mid-1950's and early 1960's. Table A-1 lists these four boilers:

Table A-1: Emission Points for Unit 80

Affected Unit	Emission Point
Boiler No. 1 (Emissions Unit 80-1)	80-1*
Boiler No. 2 (Emissions Unit 80-2)	80-1*
Boiler No. 3 (Emissions Unit 80-3)	80-1*
Boiler No. 4 (Emissions Unit 80-4)	80-1*

* Common stack.

Process Description:
There are four boilers (Boilers 1 through 4) and four steam turbine generators (ST 1 through 4) at the Delaware City Power Plant (DCPP). Each unit has a steam capacity of 500,000 lbs./hour at 1300 psig and 900 degrees F. All four boilers are connected to a common 500-foot stack. Boiler No. 4 was not modified in any way under the Repowering Project. The following describes the four boilers:

Unit	Manufacturer	Rated Capacity	Fuels Fired
Boiler No. 1	Riley Stoker	618 mmBtu/hr	Natural Gas Refinery Fuel Gas
Boiler No. 2	Riley Stoker	716 mmBtu/hr*	Natural Gas

Unit	Manufacturer	Rated Capacity	Fuels Fired
			Refinery Fuel Gas
Boiler No. 3	Riley Stoker	618 mmBtu/hr	Natural Gas Refinery Fuel Gas Syngas
Boiler No. 4	Foster Wheeler	737 mmBtu/hr	Natural Gas Refinery Fuel Gas

* Boiler No. 2 rating will increase from 618 mmBtu/hr to 716 mmBtu/hr as a result of the planned modification permitted via Reg. 2 Permit **APC-90/0289-CONSTRUCTION (Amendment 5) (RACT)** dated October 25, 2002.

Regulatory Review:
The applicable regulations for this unit are as follows:

Regulation No. 2: Permits[1]

- **APC-90/0288-CONSTRUCTION (Amendment 4) (RACT)** dated May 3, 2002 for Boiler No. 1
- **APC-90/0289-CONSTRUCTION (Amendment 5) (RACT)** dated October 25, 2002 for Boiler No. 2
- **APC-90/0290-CONSTRUCTION (Amendment 4) (RACT)** dated May 3, 2002 for Boiler No. 3
- **APC-90/0291-OPERATION** dated February 2, 1993 for Boiler No. 4

Regulation No. 3: Ambient Air Quality Standards - discussed under Section III of this memorandum
Regulation No. 4: Particulate Emissions From Fuel Burning Equipment. Section 2.1 stipulates emission limits at 0.3 lb/mmBtu on a maximum two hour average basis.
Regulation No. 8: Sulfur dioxide emissions from fuel burning equipment.
Regulation No. 12: Control of Nitrogen Oxides Emissions
Regulation No. 14: Visible Emissions. Section 2.1 stipulates visible emission limits at twenty percent (20%) opacity for an aggregate of no more than three (3) minutes in any one (1) hour period and no more than fifteen (15) minutes in any twenty-four (24) hour period.
Regulation No. 17 Source Monitoring, Recordkeeping and Reporting. This regulation is applicable facility-wide. See discussion in Section IV.D of this memorandum.
Regulation No. 19 Control of Odorous Air Contaminants. This regulation is applicable facility-wide and is state-enforceable only. See discussion in Section IV.D of this memorandum.
Regulation No. 36 Acid Rain Program
Regulation No. 39 Nitrogen Oxides (NOx) Budget Trading Program

[1] Earlier versions of the power plant boiler permits that have not been superceded include:
APC-90/0288-CONSTRUCTION (Amendment 1) (NO_x RACT) dated March 10, 1995 for Boiler No. 1;
APC-90/0289-CONSTRUCTION (Amendment 1) (NO_x RACT) dated November 28, 1995 for Boiler No. 2;
APC-90/0290-CONSTRUCTION (Amendment 1) (NO_x RACT) dated September 15, 1995 for Boiler No. 3; and
APC-90/0288, 0289 and 0290 -OPERATION dated February 2, 1993 for Boilers 1, 2 and 3
However, there are no new or additional applicable requirements in these permits from the most recent versions.

40 CFR Part 60	Subpart "J"	Standards of Performance for Petroleum Refineries
	Appendix "B"	Performance Specification No. 7 - Specifications and test procedures for H_2S continuous emission monitoring systems in stationary sources.
	Appendix "F"	Quality Assurance Requirements for Gas Continuous Emission Monitoring Systems Used for Compliance Determination
40 CFR Part 72	Permits Regulations - Acid Rain Provisions	

Premcor must comply with the more stringent or lower emission standard where more than one regulation is applicable.

Regulation No. 2 Permit Conditions: For the purpose of identifying all the applicable Regulation No. 2 permit conditions, the boilers are listed individually. Table A-2 lists current Regulation No. 2 permit conditions and their status with respect to the attached proposed Regulation No. 30 operating permit for the boilers. Copies of the Regulation No. 2 operating permits referenced below are available for review if necessary.

Table A-2: Boilers 1 through 4
Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions
Status as Applicable Requirements

Permit Condition	Status of Condition	Explanation
Permit: APC-82/0289-CONSTRUCTION (Amendment 5) (RACT) dated October 25, 2002 for Boiler No. 2		
No. 1.1	not applicable	Construction requirement. This Reg. 2 permit condition states that projects shall be constructed in accordance with the construction permits.
No. 1.2	not applicable	Construction requirement. This Reg. 2 permit condition states that Boiler 2 construction shall be completed within 20 months of the issuance of the construction permit, i.e., by June 25, 2004.
No. 1.3	transferred	Title V Operating Permit Condition 2.i. Department representatives have the right to inspect facility at any time.
No. 1.4	not applicable	Construction requirement. This Reg. 2 permit condition states that the Company shall request approval to operate Boiler 2 in writing upon completion of its modification.
No. 1.5	not applicable	Construction requirement. This Reg. 2 permit condition states that a separate Reg. 2 permit application to operate is not necessary for Boiler 2. The Department will issue a Reg. 2 operating permit after completing an on-site inspection that demonstrates compliance with all terms and conditions of the construction permit.
No. 1.6	not applicable	Construction and initial performance demonstration requirement. This Reg. 2 permit condition states that Reg. 2 Sections 2.1 and 11.3 shall not apply for the purposes of the initial performance demonstration. Advance notice of the demonstration and Department's concurrence of details of the demonstration are required.
No. 2.1	transferred	This Reg. 2 permit condition states that "TPY" is defined as "tons emitted in any rolling twelve month period." All TPY limits in the Title V permit are specified with this definition. Title V Operating Permit Condition 3, Table 1.a.1.i This Reg. 2 permit condition allows operation of Boiler No. 2 during the interim period. The interim period is defined as the

Table A-2: Boilers 1 through 4
Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions
Status as Applicable Requirements

Permit Condition	Status of Condition	Explanation
		period from the date of issuance of this construction permit until the date Boiler No. 2 is shut down for modifications.
Nos. 2.1.1 - 2.1.8	transferred	Emission limits for NOx, SO_2, CO, PM-10, TSP, VOC, H_2SO_4 and Lead. Includes emission limits for Boiler Nos. 1, 2 and 3, and the CCUs. The TPY limits are specified as combined limits for CCUs and Boilers 1, 2 and 3. The emission limits pertaining to combustion of No. 6 oil were not transferred since Premcor ceased firing No. 6 oil after October 30, 2003, per Consent Decree.
No. 2.2	transferred	This Reg. 2 permit condition states that "TPY" is defined as "tons emitted in any rolling twelve month period." All TPY limits in the Title V permit are specified with this definition.
Nos. 2.2.1 - 2.2.8	transferred	Emission limits for Boiler No. 2 for NOx, SO_2, CO, PM-10, TSP, VOC and H_2SO_4. These limits apply after completion of modification of Boiler No. 2. Modification of Boiler No. 2 is required to be completed by June 25, 2004.
No. 2.3	transferred / changed	Title V Operating Permit Condition 3, Table 1.a.2.v.A, Requires Company to propose unit-specific emission limits for CCUs and Boilers 1 and 3 at least six (6) months prior to completion of modification of Boiler 2. Based on a request from Premcor, the Department has agreed to allow the facility some post-modification operation experience before proposing these emission limits. This operation experience will provide additional confidence in the achievability of the proposed emission limits. The facility must submit a complete permit application proposing these limits by March 31, 2005.
No. 2.4	transferred	Title V Operating Permit Condition 3, Table 1.a.10.i, Opacity Requirement.
No. 2.5	transferred	Title V Operating Permit Condition 3, Table 1.e.2.i., "Facility Wide permit conditions" (Odor Requirement).
No. 3.1	transferred	Title V Operating Permit Condition 3, Table 1.a.2.i.B and 1.a.2.i.D., Fuel type and H_2S content of RFG allowed to be used for Boiler No. 2. Title V Operating Permit Condition 3, Table 1.a.2.vi, Cessation of use of No. 6 oil per Consent Decree.
No. 3.2	transferred	Title V Operating Permit Condition 3, Table 1.a.2.i.E., Proper operation of NOx control (steam injection and flue gas recirculation). Based on a request from Premcor, the Department has agreed to allow the facility to adjust these rates based on operating experience to minimize emissions and employ good engineering practice, so long as the rates are within manufacturer guidelines.
No. 3.3	transferred	Title V Operating Permit Condition 3, Table 1.a.2.i.F., Temperature of combustion air from the preheater for Boiler No. 2 shall not exceed 500 degrees F.
No. 3.4 and 3.5	transferred	Title V Operating Permit Condition 3, Table 1.e.1.i., "Facility Wide permit conditions" (good air pollution control practice and proper operating condition of equipment).

Table A-2: Boilers 1 through 4 Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions Status as Applicable Requirements		
Permit Condition	**Status of Condition**	**Explanation**
No. 4.1	transferred	Title V Operating Permit Condition 3, Table 1.a.5.iii.A and 1.a.5.iv, NOx compliance method, NOx and CO_2 CEMS.
No. 4.2	transferred / changed	Title V Operating Permit Condition 3, Table 1.a.4.iii and 1.a.4.iv, SO_2 compliance method, SO_2 CEMS. The requirement to "recertify" SO_2 CEMS for Boiler No. 2 was changed to say "initially certify" because the SO_2 CEMS on this boiler will be new and therefore will need an initial certification.
No. 4.3	transferred	Title V Operating Permit Condition 3, Table 1.a.6.iii and 1.a.6.iv, CO compliance method, CO CEMS.
No. 4.4	transferred	Title V Operating Permit Condition 3, Table 1.a.3.iii.A, 1.a.3.iii.B, 1.a.7.iii and 1.a.9.iii, Compliance method for PM-10, TSP, VOC and Lead.
No. 4.5	transferred	Title V Operating Permit Condition 3, Table 1.a.3.iii.C and 1.a.7.iii, Compliance method for PM-10, TSP and VOC for Boiler No. 2 after completion of its modification.
No. 4.6	transferred	Title V Operating Permit Condition 3, Table 1.a.8.iii, Compliance method for H_2SO_4.
No. 4.7	transferred	Title V Operating Permit Condition 3, Table 1.a.2.iii.E, Stack test requirement. Title V Operating Permit Condition 3, Table 1.a.2.v.C, Requirement to submit "Source Sampling Guidelines and Preliminary Survey Form" at least 30 days prior to stack testing and monitor performance specification testing. Title V Operating Permit Condition 3, Table 1.a.2.v.D, Requirement to report stack test results within 90 days after the testing.
No. 4.7 (misnumbered in permit)	transferred	Title V Operating Permit Condition 3, Table 1.a.2.ii.G, This pertains to the requirement to propose unit-specific emission limits for CCUs and Boilers 1 and 3 at least six (6) months prior to completion of modification of Boiler 2.
No. 4.8	transferred	Title V Operating Permit Condition 3, Table 1.a.10.iii and 1.a.10.iv, Compliance method for opacity, Operation, maintenance and certification of COMS. Although not specified in the Reg. 2 permit, it is understood (and clarified in the Title V permit) that the COMS requirement applies to the common stack serving Boiler Nos. 1, 2, 3 and 4.
No. 4.9	transferred	Title V Operating Permit Condition 3, Table 1.a.2.ii.B and 1.a.2.iii.A, Monitoring of H_2S content of RFG.
No. 4.10	transferred	Title V Operating Permit Condition 3, Table 1.a.2.ii.D, Compliance method for proper operation of NOx control (steam injection and flue gas recirculation).
No. 4.11	transferred	Title V Operating Permit Condition 3, Table 1.a.2.ii.E, Monitoring the temperature of combustion air from the preheater for Boiler No. 2.
No. 4.12	transferred	Title V Operating Permit Condition 3, Table 1.e.1.ii, "Facility Wide permit conditions" (Compliance method for demonstrating good air pollution control practice and proper operating condition of equipment).
		Title V Operating Permit Condition 3, Table 1.a.2.iv.A, Maintaining all records necessary

Table A-2: Boilers 1 through 4 Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions Status as Applicable Requirements		
Permit Condition	**Status of Condition**	**Explanation**
No. 5.1	transferred	for compliance demonstration for 5 years.
No. 5.2.1	transferred	Title V Operating Permit Condition 3, Table 1.a.4.v and 1.a.5.v.A, Maintaining NOx and SO_2 CEMS data for 5 years.
No. 5.2.2 and 5.2.3	transferred	Title V Operating Permit Condition 3, Table 1.a.2.iv.B, Maintain records for 5 years (sulfur content in clean syngas and periods when combustion air temperature from preheater of Boiler No. 2 exceeds 500 degrees F).
No. 5.2.4	obsolete	Premcor ceased firing No. 6 oil after October 30, 2003, per Consent Decree.
No. 5.2.5	transferred	Title V Operating Permit Condition 3, Table 1.a.10.v, Maintain COMS data for 5 years.
No. 6.1	transferred	Title V Operating Permit Condition 3.c.2.ii.B, Requirement to report excess emissions
No. 6.2	transferred	Title V Operating Permit Condition 3, Table 1.a.2.v.E, Quarterly excess emissions reports.
No. 7.1	transferred	Title V Operating Permit Condition 2.k, Availability of permit on site.
No. 7.2	transferred	Title V Operating Permit Condition 3, Table 1.a.2.v.G, Notification prior to making changes at the facility that trigger applicability of CAA Title IV (Acid Rain).
No. 7.3	obsolete	This Reg. 2 permit condition whereby old operating permits were superseded is no longer applicable.
No. 7.4	not applicable	This Reg. 2 construction permit expiration date is not applicable to Title V operating permits.
No. 7.5	transferred	Title V Operating Permit Condition 2.b.1, Requirement to comply with the permit conditions.
Permits: APC-90/0288-CONSTRUCTION (Amendment 4) (RACT) - Boiler No. 1 and **APC-90/0290-CONSTRUCTION (Amendment 4) (RACT) - Boiler No. 3** dated May 3, 2002		
No. 1	not applicable	Construction requirement. This Reg. 2 permit condition states that projects shall be constructed in accordance with the construction permits.
No. 2	obsolete	This condition provided a mechanism to move from a Reg. 2 construction permit to a Reg. 2 operating permit.
No. 3	transferred	Title V Operating Permit Condition 2.i. Department representatives right to inspect facility at any time.
No. 4	transferred	Title V Operating Permit Condition 3.c.2.ii.B, Requirement to report excess emissions
No. 5	obsolete	Emissions limits for the start-up year of 2001 are no longer applicable.
No. 6	obsolete	These emission limits were superceded by permit **APC-82/0289-CONSTRUCTION (Amendment 5) (RACT) - Boiler No. 2**, dated 10/25/2002.
		Title V Operating Permit Condition 3, Table 1.a.2.iii.C, Requirement to monitor amount of

Table A-2: Boilers 1 through 4
Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions
Status as Applicable Requirements

Permit Condition	Status of Condition	Explanation
No. 7	transferred	syngas combusted in Boiler No. 3.
No. 8	obsolete	The syngas sulfur content requirement was superceded by the CCU permit **APC-97/0503-OPERATION (Amendment 2) (LAER) (NSPS)**, dated 08/06/2003.
No. 9	obsolete	Premcor ceased firing No. 6 oil after October 30, 2003, per Consent Decree.
No. 10	transferred	Title V Operating Permit Condition 3, Table 1.a.2.iii.B, Performance and RATA requirement for the TRS monitor.
No. 11	transferred	Title V Operating Permit Condition 3, Table 1.a.4.iii and 1.a.4.iv, SO_2 CEMS requirement. Title V Operating Permit Condition 3, Table 1.a.5.iii.A and 1.a.5.iv, NOx CEMS requirement. Title V Operating Permit Condition 3, Table 1.a.2.v.C and 1.a.2.v.D, Reporting requirements for monitor certification testing.
No. 12	transferred	Title V Operating Permit Condition 3, Table 1.a.10.i, 1.a.10.iii and 1.a.10.iv.B, SO_2 CEMS requirement.
No. 13	transferred	Title V Operating Permit Condition 3, Table 1.e.2.i, "Facility Wide permit conditions" (Odor Requirement).
No. 14	transferred	Title V Operating Permit Condition 3, Table 1.a.2.iii.E, Stack test requirement. Title V Operating Permit Condition 3, Table 1.a.2.v.C, Requirement to submit "Source Sampling Guidelines and Preliminary Survey Form" at least 30 days prior to stack testing and monitor performance specification testing. Title V Operating Permit Condition 3, Table 1.a.2.v.D, Requirement to report stack test results within 90 days after the testing.
No. 15	transferred / obsolete	Title V Operating Permit Condition 3, Table 1.a.4.v and 1.a.5.v.A, Maintaining NOx and SO_2 CEMS data for 5 years. Title V Operating Permit Condition 3, Table 1.a.2.iv.B, Maintain records for 5 years (sulfur content in clean syngas). Premcor ceased firing No. 6 oil after October 30, 2003, per Consent Decree. Therefore, the requirement on sulfur content of No. 6 oil is obsolete. Title V Operating Permit Condition 3, Table 1.a.10.v, Maintain COMS data for 5 years.
No. 16	transferred	Title V Operating Permit Condition 3, Table 1.a.2.v.E, Quarterly excess emissions reports.
No. 17	transferred	Title V Operating Permit Condition 3, Table 1.a.2.v.G, Notification prior to making changes at the facility that trigger applicability of CAA Title IV (Acid Rain).
No. 18	not applicable	This Reg. 2 construction permit expiration date is not applicable to Title V operating permits.

Table A-2: Boilers 1 through 4 Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions Status as Applicable Requirements		
Permit Condition	**Status of Condition**	**Explanation**
No. 19	transferred	Title V Operating Permit Condition 2.k, Availability of permit on site.
No. 20	transferred	Title V Operating Permit Condition 2.b.1, Requirement to comply with the permit conditions.
Permit: APC-90/0291-OPERATION dated February 2, 1993 for Boiler No. 4		
No. 1	transferred	Title V Permit Condition 2.b.1. Emissions shall not exceed those specified in Delaware's "Regulations Governing the Control of Air Pollution."
No. 2	transferred	Title V Operating Permit Condition 3, Table 1.a.2.i.G, Sulfur content of fuel.
No. 3	transferred	Title V Operating Permit Condition 3, Table 1.a.10.i, Opacity Requirement.
No. 4	transferred	Title V Operating Permit Condition 3, Table 1.a.2.iii.F and 1.a.2.v.F, Requirement to monitor oxygen concentration of Boiler 4 combustion gases and associated reporting requirement.
No. 5	transferred	Title V Operating Permit Condition 3.c.2.ii.B, Excess emissions reporting.
No. 6	transferred	Title V Operating Permit Condition 2.i. Department representatives right to inspect facility at any time.
No. 7	not applicable	This Reg. 2 construction permit expiration date is not applicable to Title V operating permits.
No. 8	transferred	Title V Operating Permit Condition 2.k, Availability of permit on site.
No. 9	transferred	Title V Operating Permit Condition 2.b.1, Requirement to comply with the permit conditions.

The Regulation No. 2 permits for the boilers were based on Premcor's representation of the design capacity of each boiler as follows:

Boiler No. 1 - 618 mmBtu/hr
Boiler No. 2 - 716 mmBtu/hr
Boiler No. 3 - 618 mmBtu/hr
Boiler No. 4 - 737 mmBtu/hr

The Department had initially agreed to not include the design capacities (Btu ratings) as applicable requirements in the Title V permit. However, based on comments received on the draft permit, and upon further evaluation of regulatory requirements, the Department is imposing the design capacity for Boiler 4 as a permit limit. Regulation 2, Section 11.8 requires that the permitted emission limit of any unit shall not exceed that unit's potential to emit (PTE), and that this permitted emission limit shall also not exceed the emission rate that has been shown to achieve compliance with the National Ambient Air Quality Standards. Since the Regulation 2 permit for Boiler 4 does not specify a numerical emission limit, the only way to quantify

emissions from this boiler is to use its design capacity together with data on fuel use and hours of operation. Premcor must ensure that fuel firing in Boiler 4 does not exceed the firing rate of 737 MMBtu/hr on a 24-hour rolling average basis, and must monitor all fuel flow rates to demonstrate compliance with this limit. Since Boiler 2 has unit-specific numerical emission limits which are based on its PTE, there is no need to include its design capacity as a permit limit. For the CCUs and Boilers 1 and 3, the facility is required to submit by March 31, 2005 unit-specific numerical (tons per year) emission limits on a rolling twelve (12) month basis. These emission limits should also eliminate the need to specify the design capacities of CCUs and Boilers 1 and 3 as permit limits. However, if these unit-specific emission limits are not received by March 31, 2005, the Department reserves the right to impose the design capacities of these units as permit limits in the Title V permit.

Compliance with several of the above-listed emission limits is based on stack-test based emission factors. Based on comments received on the draft permit, the Department has included a definition of "Stack Test Based Emission Factor" to specify that these emission factors must be based on the most recent stack test that is no more than five (5) years old. This requirement will ensure that the emission factors are representative of the current operating conditions of the boilers. Furthermore, the five-year period coincides with the five year term of the Title V permit. Therefore, the facility is required to conduct a stack test at least once during each five-year permit term.

Regulation No. 4:
This regulation is applicable to all fuel burning equipment with a rated heat input greater than 1 mmBtu/hour. Boilers 1 through 4 have rated heat inputs greater than 1 mmBtu/hr, as shown in Table A-3 below. Therefore, they are subject to the particulate matter standard of 0.3 lb/mmBtu (2 hour average) as prescribed by this regulation. *[Reference: Reg. 4, Section 2.1 dated 02/01/81]*

Table A-3: Heat Input Capacities of Boilers

Unit	Emission Point	Boiler Unit ID	Rating (mmBtu/Hour)
Boiler No. 1	80-1	80-1	618
Boiler No. 2	80-1	80-2	716
Boiler No. 3	80-1	80-3	618
Boiler No. 4	80-1	80-4	737

Compliance Determination Methodology for Regulation No. 4:
All of the above referenced boilers combust only desulfurized RFG, natural gas or syngas. RFG has to conform with the NSPS limit of 0.1 grain H_2S/dscf on a three hour rolling average basis. Syngas sulfur content is also restricted by the permit. Natural gas also has a very low sulfur content. It is reasonable to attribute particulate emissions from these units to the sulfur content in fuel. Furthermore, Boilers 1, 2 and 3 have specific particulate matter limits of 0.005 lb/mmBtu. Therefore, when complying with the above limit, these units shall be deemed to be in compliance with Regulation 4. *[Reference: Reg. 30 Section 6(a)(3)(i)(B) dated 11/15/93]*

Monitoring:
This regulation does not contain monitoring requirements. In accordance with Regulation No. 30, Section

(6)(a)(3)(i)(B) the Department proposes continuously monitoring the H_2S content in RFG, sulfur content of syngas, fuel flow rates and heating values, and stack testing for particulate matter as acceptable periodic monitoring. *[Reference: Reg. 30 Section 6(a)(3)(i)(B) dated 12/11/00]*

Recordkeeping:
Records documenting all monitoring and stack testing results in addition to complying with the general record keeping requirements of Condition 3(b)(2) of the attached permit. *[Reference: Regulation No. 30 Section 6(a)(3)(ii) dated 12/11/00]*

Reporting:
A minimum of 30-day advance notice of all monitor and stack testing, and submittal of testing results within 90 days after testing is required. Quarterly reports of excess emissions are also required.

Regulation No. 8:
Regulation No. 8 stipulates that no person may combust any fuel with a sulfur content greater than 1 percent by weight. All boilers combust RFG, syngas or natural gas. During natural gas curtailment, the boilers can combust low sulfur (0.05 wt% sulfur) liquid fuel. RFG is desulfurized to conform to the NSPS limit of 0.1 grain H_2S/dscf which is more stringent than the requirements of Regulation No. 8. Similarly, syngas sulfur content requirement of 508 ppmvd (24-hour average) and 480 ppmvd (12-month average) is more stringent than the requirements of Regulation No. 8. Natural gas sulfur content (~ 0.002 grains/scf per AP-42) and the permit limit of 0.05% sulfur in liquid fuel are also less than this regulatory limit. Therefore, no additional requirements are proposed here. *[Reference: Reg. 8, Section 2.1 dated 05/09/85]*

Regulation No. 12:
Regulation No. 12 is applicable for all fuel burning equipment with a rated heat input greater than 15 mmBtu/hour at a major source of NOx emissions. As shown in Table A-3, all boilers have rated heat input capacities greater than 15 mmBtu/hour. Therefore, all four boilers are subject to Regulation 12. *[Reference: Reg. 12, Section 3 dated 11/24/93]*

For units with a rated heat input greater than 100 mmBtu/hour, a NO_x RACT emission limit of 0.20 lb/mmBtu applies when burning gas and 0.25 lb/mmBtu applies when burning oil, based on a 24-hour rolling average. These limits apply to all boilers. *[Reference: Reg. 12, Section 3.2 dated 11/24/93]*

Compliance Determination Methodology for Regulation No. 12:
For Boilers 1, 2 and 3, the existing Regulation No. 2 permit condition specifies a NO_x limit of 0.20 lb/mmBtu when firing natural gas, RFG or syngas. Furthermore, upon completion of the modification of Boiler 2, a more stringent 0.04 lb/mmBtu emission limit will apply. Similarly, the 0.20 lb/mmBtu limit also applies to Boiler 4 when combusting RFG or natural gas. For oil combustion in all boilers during periods of natural gas curtailment (which is allowed under the facility's consent decree), the limit of 0.25 lb/mmBtu applies. While the Regulation No. 2 permit for Boiler 4 does not specifically list this as a permit condition, the permit states that Boiler 4 must comply with the State of Delaware Regulations Governing the Control of Air Pollution.

Compliance with the above-mentioned Regulation No. 2 permit conditions will demonstrate compliance with Regulation No. 12. Compliance demonstration is based on NOx and O_2 CEMS.

Monitoring and Testing:
The attached permit requires NOx and O_2 CEMS for the boilers. The CEMS shall meet the applicable performance specifications and QA/QC requirements.

Recordkeeping:
The Company shall maintain the NOx CEMS data for at least five (5) years, in addition to complying with the general recordkeeping requirements of Condition 3(b)(2) of the attached permit *[Reference: Reg. 30 Section 6(a)(3)(ii) dated 12/11/00]*

Reporting:
The Company is required to provide to the Department a 30-day advance notice of monitor testing and to submit a "Source Sampling Guidelines and Preliminary Survey Form." All test results are required to be submitted within 90 days of testing. Quarterly excess emissions reporting is also required.

Regulation No. 14:
The Company shall not cause or allow the emission of visible air contaminants and/or smoke from any emission unit, the shade or appearance of which is greater than twenty (20) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour period or more than fifteen (15) minutes in any twenty-four (24) hour period. *[Reference Reg. 14 Section 2.1, dated 7/17/84 and Regulation No. 2 Operating Permits, dated 06/01/97]*

Compliance Determination Methodology for Regulation No. 14
Compliance is based on Continuous Opacity Monitoring System (COMS).

Monitoring/Testing
The attached permit requires the operation and maintenance of COMS. The COMS shall meet the applicable performance specification requirements.

Record Keeping:
The Company shall maintain the COMS data for at least five (5) years, in addition to complying with the general recordkeeping requirements of Condition 3(b)(2) of the attached permit *[Reference: Reg. 30 Section 6(a)(3)(ii) dated 12/11/00]*

Reporting:
The Company is required to provide to the Department a 30-day advance notice of monitor testing and to submit a "Suorce Sampling Guidelines and Preliminary Survey Form." All test results are required to be submitted within 90 days of testing. Quarterly excess emissions reporting is also required.

Regulation No. 36 and 40 CFR 72:
These regulations contain the acid rain provisions and are applicable only to Boiler No. 4. The provisions apply to SO_2 and NOx emissions from this boiler, and require the emissions limitations to be met and sufficient allowances to cover actual emissions.

Compliance Determination Methodology for Regulation No. 36 and 40 CFR 72:
Compliance is based on monitoring, recordkeeping and reporting requirements. These requirements are clearly specified in the acid rain permit application that the Company has filed with the EPA Administrator. All of these conditions have been included in the attached permit.

Regulation No. 39:
Regulation No. 39 contains the provisions of the NOx Budget Trading Program, which is a cap-and-trade program designed to help reduce overall NOx emissions. All four boilers at Premcor are NOx budget sources and therefore must maintain sufficient allowances to cover their actual NOx emissions during the ozone season (May 1 through September 30 of each year). An allowance is a limited authorization to emit one ton of NOx

during the ozone season. The allowances are held in the source's compliance account or the overdraft account. *[Reference: Reg. 39, Section 2 dated 12/11/00]*

Compliance Determination Methodology for Regulation No. 39:
The boilers have been allocated the following allowances under the NOx budget trading program:

Boiler No. 1 - 160 tons
Boiler No. 2 - 159 tons
Boiler No. 3 - 162 tons
Boiler No. 4 - 144 tons

Each year, the Company is required to determine its actual emissions of NOx during the ozone season (May through September). Compliance is achieved if the total actual emissions are less than the allowances held by the Company in its compliance and/or the overdraft accounts. If sufficient allowances are not available, the Company has until the end of November to purchase additional allowances from the trading market to cover their actual emissions.

Monitoring & Testing:
The actual NOx emissions during the ozone season shall be determined via CEMS. The CEMS are subject to the applicable performance specification, QA/QC and RATA requirements.

Recordkeeping:
All records pertaining to the NOx Budget Trading Program, such as the emissions monitoring information, any reports or certifications submitted under this program, and documents used for compliance demonstration, shall be maintained on site at the facility for at least five (5) years.

Reporting:
In addition to the reporting requirements that apply to the NOx CEMS discussed above, the Company is also required to submit certain reports and certifications required under Regulation No. 39, Sections 8 and 11.

B. **Texaco Gasifiers 1 & 2, Gas Coolers 1 & 2, Amine Acid Gas Removal System, Syngas Flare (Unit 82) and 3-Cell Cooling Tower (Unit 50)**

The Emissions Unit 82 consists of two Texaco Gasifiers, two associated gas coolers, a single amine acid gas removal that serves both gasifiers, and one syngas flare. The Emissions Unit 50 consists of one three-cell linear mechanical draft evaporative cooler. All these units are new units constructed as part of the Repowering Project. Table B-1 lists these units:

Table B-1: Emission Points for Units 82 and 50

Affected Unit		Emission Point
Emission Unit 82	Texaco Gasifier 1 (Emissions Unit 82-1a)	Fugitive
	Gas Cooler for Gasifier 1 (Emissions Unit 82-1b)	Fugitive
	Texaco Gasifier 1 (Emissions Unit 82-2a)	Fugitive

Affected Unit		Emission Point
	Gas Cooler for Gasifier 2 (Emissions Unit 82-2b)	Fugitive
	Amine Acid Gas Removal System (Emissions Unit 82-3)	82-1
	Syngas Flare (Emissions Unit 82-4)	82-2
Emission Unit 50	Evaporative Cooler	50

Process Description:
The syngas manufacturing facility will gasify petroleum coke to produce gaseous fuel using a proprietary Texaco gasification process and standard amine-based acid gas removal technology. The major elements of the Texaco gasification process are petroleum coke grinding, gas cooling and clean-up, and an air separation unit to generate +95 percent pure oxygen. The petroleum coke is mixed with water and soil and ground into a slurry. The slurry is then pumped into a refractory-lined gasifier where it is reacted with oxygen and steam to make syngas. The syngas is then cooled, scrubbed to remove particulates, and treated using a regenerative, amine-based desulfurization process to remove sulfur compounds. Since the gasification process occurs in a reducing (oxygen-poor) atmosphere, sulfur contained in the petroleum coke is converted to hydrogen sulfide and carbonyl sulfide. These acidic, sulfur containing gases are remove in the desulfurization process and converted to marketable sulfur in the refinery's existing SRU's. The +95 percent pure oxygen required for the gasification reaction is supplied by a new air separation unit. The nitrogen produced in the air separation process is injected into the combustion turbines (Emissions Unit 84) for NOx control and as a method of augmenting power production.

An on-site dedicated process flare is included as part of the project to burn gases generated during plant start-ups, shutdowns, or emergency conditions. The system will have high-pressure and low-pressure relief lines to carry the vented gases to the elevated flare. Separator drums will be provided upstream of the flare to capture condensate that may be carried in the vented process gas.

A cooling water system provides cooling for the air separation and gasification units. The cooling water system will use a once-through, induced draft cooling tower (30,000 gpm) with makeup supplied from the once-through cooling water discharge of the DCPP.

Regulatory Review:
The applicable regulations for this unit are as follows:

Regulation No. 2: Permits
- **APC-97/0504-OPERATION** dated August 6, 2003

Regulation No. 3: Ambient Air Quality Standards - discussed under Section III of this memorandum
Regulation No. 5: Particulate Emissions from Industrial Process Operations
Regulation No. 24: Control of Volatile Organic Compound Emissions
Section 29: Leaks from Petroleum Refinery Equipment
40 CFR Part 60: Subpart "A" Standards of Performance for Flares
Subpart "VV" Standards of Performance for Equipment Leaks (Fugitive Emission Sources)

Regulation No. 2 Permit Conditions: Table B-2 lists current Regulation No. 2 permit conditions and their

status with respect to the attached Regulation No. 30 operating permit. Copies of the Regulation No. 2 operating permits referenced below are available for review if necessary.

Table B-2: Gasifiers, Gas Coolers, Amine Acid Gas Removal System, Syngas Flare, Cooling Tower Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions Status as Applicable Requirements

Permit Condition	Status of Condition	Explanation
Permit: APC-97/0504-OPERATION for the Gasification Plant.		
No. 1.1	transferred	Title V Operating Permit Condition 2.i. Department representatives have the right to inspect facility at any time.
No. 1.2	transferred	Title V operating Permit Condition 2.d. Any construction or modification requires the submittal of a permit application under Regulation No. 2 and, when applicable, Regulation No. 25 and the approval of the application by the Department prior to commencing such construction or modification.
No. 2.1	transferred	Title V Operating Permit Condition 3, Table 1.c.2.i.A. Particulate matter emissions limit for the cooling tower. Title V Operating Permit Condition 3, Table 1.c.2.iii. Requirement to install high efficiency mist eliminators with a guaranteed emission factor of 0.002 percent drift loss per pound of cooling water recirculation.
No. 2.2	transferred	Title V Operating Permit Condition 3, Table 1.c.6.i. Visible emissions from the syngas flare.
No. 2.3	transferred	Title V Operating Permit Condition 3, Table 1.c.3.i. SO_2 emissions from clean syngas flaring during start-ups and shutdowns.
No. 2.4	transferred	Title V Operating Permit Condition 3, Table 1.e.2.i., "Facility Wide permit conditions" (Odor Requirement).
No. 3.1	transferred	Title V Operating Permit Condition 3, Table 1.b.2.i. Limit on sulfur content of clean syngas as measured by the TRS analyzer.
No. 3.2	transferred	Title V Operating Permit Condition 3, Table 1.b.1.i.A. Fugitive emissions of VOC and H_2S are subject to LDAR requirements.
No. 3.3	transferred / augmented	Title V Operating Permit Condition 3, Table 1.c.1.i. Syngas may be diverted to the flare during start-ups, shutdowns and process upsets. The Company shall take all necessary steps to ensure that the duration of each flaring event is minimized. Based on discussions with Premcor, the Department has agreed to add a limit of no more than 800 hours of clean syngas flaring per year. See further discussion below.
No. 3.4	transferred	Title V Operating Permit Condition 3, Table 1.b.1.i.B. Requirement to reduce coke slurry feed rate to the gasifiers during raw syngas flaring event.
No. 3.5 and 3.6	transferred	Title V Operating Permit Condition 3, Table 1.e.1.i., "Facility Wide permit conditions" (good air pollution control practice and proper operating condition of equipment).
No. 4.1	transferred	Title V Operating Permit Condition 3, Table 1.c.2.iv. Monitoring and testing requirement to support the particulate matter emission standard for the cooling tower.

Table B-2: Gasifiers, Gas Coolers, Amine Acid Gas Removal System, Syngas Flare, Cooling Tower Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions Status as Applicable Requirements		
Permit Condition	**Status of Condition**	**Explanation**
No. 4.2	transferred	Title V Operating Permit Condition 3, Table 1.c.6.iv. Monitoring and testing requirement for visible emissions from the syngas flare.
No. 4.3	transferred	Title V Operating Permit Condition 3, Table 1.c.3.iii. Compliance method for the SO_2 emission standard for syngas flaring. Title V Operating Permit Condition 3, Table 1.c.3.iv. Monitoring and testing requirements to support the SO_2 emission standard for syngas flaring. Condition 4.3.4 of the Regulation No. 2 permit was not transferred because this condition has been met by the Company.
No. 4.4	transferred	Title V Operating Permit Condition 3, Table 1.b.2.ii. And 1.b.2.iii. Requirement to operate and maintain TRS CEMS to monitor sulfur content of clean syngas.
No. 4.5	transferred	Title V Operating Permit Condition 3, Table 1.b.1.ii.A. Compliance method for LDAR requirements.
No. 4.6	transferred	Title V Operating Permit Condition 3, Table 1.b.1.ii.B. Compliance method for the requirement to minimize duration of each flaring event. Title V Operating Permit Condition 3, Table 1.c.1.ii. Compliance method for the requirement to reduce coke slurry feed rate during raw syngas flaring. Per Premcor's request, the compliance method was augmented to include Recordkeeping and Reporting requirements. Title V Operating Permit Condition 3, Table 1.e.1.ii. "Facility Wide permit conditions" (Compliance method for demonstrating good air pollution control practice and proper operating condition of equipment).
No. 5.1 and 5.2	transferred / corrected	Title V Operating Permit Condition 3, Table 1.b.1.iv, 1.b.2.iv, 1.c.1.iv, 1.c.2.v and 1.c.3.v. Requirement to maintain records for at least five (5) years. Condition 5.2.3 was corrected to require recordkeeping of "total solids" instead of "dissolved solids." Condition 4.1.1 of this Reg. 2 permit requires testing of total solids.
No. 6.1	transferred	Title V Operating Permit Condition 3.c.2.ii.B. Requirement to report excess emissions.
No. 6.2	transferred	Title V Operating Permit Condition 3, Table 1.b.2.v, 1.c.1.v and 1.c.2.vi. Quarterly excess emissions reports.
No. 7.1	transferred	Title V Operating Permit condition 2.k. Availability of permit on site.
No. 7.2	not applicable	This Reg. 2 permit condition grants authority to operate the units covered by the permit and does not need to be transferred to the Title V permit.
No. 7.4 (misnumbered in permit)	not applicable	The Reg. 2 permit expiration date is not applicable to the Title V Operating Permit.
No. 7.5 (misnumbered in permit)	transferred	Title V Operating Permit Condition 2.b.1. Requirement to comply with the permit conditions.

The Regulation No. 2 permit for the flare only specified emission limits for one pollutant, SO_2, of 709 tons per year. The Department realizes that other pollutants such as NOx and CO are also generated due to flaring of syngas, and has received from Premcor the calculations of estimated annual emissions of these pollutants. The Department concurs with Premcor's request that emission limits for these other pollutants should also be specified and has included these limits in the attached permit. The Department is requiring the Company to continuously monitor the type and the duration of clean syngas and raw syngas combusted in the flare as the compliance method for these NOx and CO emission limits. Note that while natural gas is continuously fired in the flare to maintain the pilot flame, the emissions from natural gas combustion represent only a small fraction of the total flare emissions. For example, the NOx, SO_2 and CO emissions from natural gas combustion in the flare are approximately 0.5, 0.003 and 0.010 tons per year, respectively, compared to the total permitted levels of 28, 709 and 1,117 tons per year. Therefore, the Department is not requiring the monitoring of natural gas flow to the flare.

From the operational standpoint, the flaring of syngas occurs under two scenarios:

1. Start-up/shutdowns
2. Process upsets and malfunctions

Premcor has estimated that there could be as many as 50 start-ups and shutdowns in any given year, and that each start-up lasts 4.5 hours and each shutdown lasts 1 hour. From the calculations submitted by Premcor, an estimated 600 tons per year of SO_2 emissions can result from start-ups and shutdowns (assuming that during each event 50 percent of the flared syngas is clean and the other 50 percent is raw syngas). In addition to start-ups/shutdowns, syngas may need to be diverted to the flare during periods when process upsets, malfunctions and safety trips occur in the combustion turbines, gasification section, gas cooling section, the amine acid gas removal system, the refinery sulfur recovery unit or in the air separation plant. Premcor has estimated that up to 5 hours of raw syngas flaring and up to 800 hours of clean syngas flaring can occur in any given year, resulting in an additional 109 tons per year of SO_2 emissions. Therefore, the total estimated SO_2 emissions are 709 tons per year. Similarly, the estimated NOx and CO emissions are 28 tons per year and 1,117 tons per year, respectively.

While Premcor's estimated hours of flaring during process upsets and malfunctions, i.e., 800 hours per year, may appear to be significant, the Department concurs that in case of a process upset, such as a safety trip in the combustion turbine, it is less harmful to the environment to allow flaring of clean syngas than it is to require the gasifier to be shutdown. For example, while each shutdown and start-up event can generate up to 12 tons of SO_2, it would take well over 40 hours of clean syngas flaring to generate the same amount of emissions. Therefore, in the interest of minimizing overall emissions, the Department agrees to allow up to 800 hours of clean syngas flaring per year. However, given that 800 hours per year is an estimate based on a small amount of operating history, the Department reserves the right to revisit this 800 hour limit at the time of permit renewal, with the intent to

reduce this limit based on actual operational history established during the term of this permit.

Premcor is also required by the attached permit, to the extent practicable, to maintain and operate the facility including associated air pollution control equipment at all times, including periods of startup, shutdown, and malfunction in a manner consistent with good air pollution control practice for minimizing emissions.

Regulation No. 5:

Regulation No. 5 specifies that particulate emissions into the atmosphere shall not exceed 0.2 grains per dry standard cubic foot. This limit applies to the cooling tower (Emission Unit 50). *[Reference: Regulation No. 5, Section 2 dated 02/01/81]*

Compliance Determination Methodology for Regulation No. 5:
The Regulation No. 2 operating permit specifies an emissions limit of 6.57 TPY (or 1.5 lb/hr) for the cooling tower based on 30,000 gpm maximum water flow rate and a TDS concentration of 5,000 ppmw. At a flow rate of 180 million cubic feet per hour, this translates to an emission rate of 5.8×10^{-5} grain/dscf, which is less than the Regulation No. 5 emission limit.

Monitoring:
The attached permit requires the weekly testing of TDS in water and continuous monitoring of water flow rate.

Recordkeeping:
The attached permit requires on-site maintenance of monitoring records for at least five (5) years.

Reporting:
The attached permit requires quarterly excess emissions reports.

Regulation No. 24 and 40 CFR 60, Subpart VV:
Section 29 of Regulation No. 24, Leaks from Petroleum Refinery Equipment, and 40 CFR 60, Subpart VV, Equipment Leaks of VOC in SOCMI, are applicable requirements. *[Reference: Regulation 24, Section 29 dated 11/29/94 and 40 CFR 60, Subpart VV*].

Compliance Determination Methodology for Regulation No. 24 and 40 CFR 60, Subpart VV:
Compliance is based on a Department approved Leak Detection and Repair program that addresses the fugitive emissions of VOC and H_2S from the gasification process.

Monitoring, Recordkeeping and Reporting:
No specific monitoring, recordkeeping and reporting requirements are proposed.

40 CFR 60, Subpart A:
The NSPS requirements for flares in 40 CFR 60, Subpart A are applicable requirements. The regulation requires that the emissions from flares shall be smokeless except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours. *[Reference: 40 CFR 60, Subpart A, Section 60.18*].

Compliance Determination Methodology for 40 CFR 60, Subpart A:

As required under 40 CFR 60, Subpart A, compliance shall be determined by Reference Method 22 of Appendix A of 40 CFR 60.

Monitoring:
Reference Method 22 of Appendix A of 40 CFR 60.

Recordkeeping:
The attached permit requires all monitoring records shall be maintained on site for a period of at least five (5) years.

Reporting:
Quarterly reporting of excess emissions is required.

C. **Combined Cycle Units (Unit 84)**

The Emissions Unit 84 consists of two combined cycle units (CCU's). Table C-1 lists the emission points for this unit.

Table C-1: Emission Points for Unit 84

Affected Unit	Emission Point
Gas Turbine No. 1 and associated HRSG with duct burner (Emissions Unit 84-1)	84-1
Gas Turbine No. 2 and associated HRSG with duct burner (Emissions Unit 84-2)	84-2

Process Description:
Each CCU consists one gas-fired combustion turbine (CT) and one heat recovery steam generator (HRSG) with a natural gas-fired duct burner. The primary fuel for the CT's is syngas. Low sulfur diesel fuel (0.05 wt% sulfur) is also allowed to be combusted in both CT's. The CT's are rated at 824.7 mmBtu/hr LHV input and 878.4 mmBtu/hr HHV input. The duct burners for the HRSG's are rated at 215 mmBtu/hr each and are only allowed to combust natural gas. Each HRSG serves a steam turbine generator rated at 90 MW nominal.

Regulatory Review:
The applicable regulations for this unit are as follows:

Regulation No. 2:Permits

- **APC-97/0503-OPERATION (LAER)(NSPS)** dated August 6, 2003

Regulation No. 3: Ambient Air Quality Standards - discussed under Section III of this memorandum
Regulation No. 4: Particulate Emissions From Fuel Burning Equipment. Section 2.1 stipulates emission limits at 0.3 lb/mmBtu on a maximum two hour average basis.
Regulation No. 8: Sulfur dioxide emissions from fuel burning equipment.
Regulation No. 12: Control of Nitrogen Oxides Emissions
Regulation No. 14: Visible Emissions. Section 2.1 stipulates visible emission limits at twenty percent (20%) opacity for an aggregate of no more than three (3) minutes in any one (1) hour period and no more than fifteen (15) minutes in any twenty-four (24) hour period.
Regulation No. 17 Source Monitoring, Recordkeeping and Reporting. This regulation is applicable

facility-wide. See discussion in Section IV.D of this memorandum.

Regulation No. 19	Control of Odorous Air Contaminants. This regulation is applicable facility-wide and is state-enforceable only. See discussion in Section IV.D of this memorandum.
Regulation No. 20	New Source Performance Standards
Regulation No. 25	Requirements for Preconstruction Review
Regulation No. 39	Nitrogen Oxides (NOx) Budget Trading Program
40 CFR Part 60	Subpart "Db"Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units
	Subpart "J" Standards of Performance for Petroleum Refineries
	Subpart "GG" Standards of Performance for Stationary Gas Turbines

Premcor must comply with the more stringent or lower emission standard where more than one regulation is applicable.

Regulation No. 2 Permit Conditions: Table C-2 lists current Regulation No. 2 permit conditions and their status with respect to the attached proposed Regulation No. 30 operating permit for the CCU's. Copies of the Regulation No. 2 operating permits referenced below are available for review if necessary.

Table C-2: Combined Cycle Units
Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions
Status as Applicable Requirements

Permit Condition	Status of Condition	Explanation
Permit: APC-97/0503-OPERATION (Amendment 2) (LAER)(NSPS) dated August 6, 2003 for CCU's		
No. 1.1	transferred	Title V Operating Permit Condition 2.i. Department representatives have the right to inspect facility at any time.
No. 1.2	transferred	Title V operating Permit Condition 2.d. Any construction or modification requires the submittal of a permit application under Regulation No. 2 and, when applicable, Regulation No. 25 and the approval of the application by the Department prior to commencing such construction or modification.
No. 2.1	transferred	This Reg. 2 permit condition states that "TPY" is defined as "tons emitted in any rolling twelve month period." All TPY limits in the Title V permit are specified with this definition.
Nos. 2.1.1 - 2.1.8	transferred	Emission limits for NOx, SO_2, CO, PM-10, TSP, VOC, H_2SO_4 and Lead. Includes emission limits for the CCUs. The TPY limits are specified as combined limits for CCUs and Boilers 1, 2 and 3.
No. 2.2	transferred	Title V Operating Permit Condition 3, Table 1.d.9.i. Visible Emissions Requirement. Title V Operating Permit Condition 3, Table 1.d.9.iii and 1.d.9.iv. Compliance Method and Monitoring Requirement for visible emissions.
No. 2.3	transferred	Title V Operating Permit Condition 3, Table 1.e.2.i. "Facility Wide permit conditions" (Odor Requirement).
No. 3.1 & 3.2	transferred	Title V Operating Permit Condition 3, Table 1.d.4.ii. NOx LAER requirement.
No. 3.2.1	transferred	Title V Operating Permit Condition 3, Table 1.d.5.i.C. CO lb/mmBtu limits do not apply during start-ups, shutdowns and fuel transfers.

Table C-2: Combined Cycle Units Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions Status as Applicable Requirements		
Permit Condition	**Status of Condition**	**Explanation**
No. 3.2.2	transferred	Title V Operating Permit Condition 3, Table 1.d.4.i.D. NOx emission limit of 390 ppmvd @ 15% O_2 during start-ups, shutdowns and fuel transfers.
No. 3.2.3	transferred	Title V Operating Permit Condition 3, Table 1.d.1.ii.F. Requirement to limit duration of start-ups, shutdowns and fuel transfers to 2 hours.
No. 3.3	transferred	Title V Operating Permit Condition 3, Table 1.d.1.ii.A. Only syngas or LSDF are allowed to be combusted in the CCU's. Annual LSDF limit of 11,117,452 gallons.
No. 3.4	transferred	Title V Operating Permit Condition 3, Table 1.d.1.ii.B and 1.d.1.iv.A. Sulfur content of LSDF limited to 0.05 weight %..
No. 3.5	transferred	Title V Operating Permit Condition 3, Table 1.d.1.ii.C. Only natural gas is allowed to be combusted in the duct burners. Annual natural gas limit of 930,080 mmBtu/year.
No. 3.6	transferred	Title V Operating Permit Condition 3, Table 1.d.1.ii.D. H2S content of syngas limited to 0.1 gr/dscf (40 CFR 60, Subpart J requirement).
No. 3.7	transferred	Title V Operating Permit Condition 3, Table 1.d.1.ii.E. Sulfur content limit for clean syngas.
No. 3.8 & 3.9	transferred	Title V Operating Permit Condition 3, Table 1.e.1.i. "Facility Wide permit conditions" (good air pollution control practice and proper operating condition of equipment).
No. 4.1	transferred	Title V Operating Permit Condition 3, Table 1.d.4.iii.A and 1.d.4.iv. NOx compliance method, NOx and O_2 CEMS.
No. 4.2	transferred	Title V Operating Permit Condition 3, Table 1.d.3.iii and 1.d.3.iv. SO_2 compliance method, SO_2 CEMS.
No. 4.3	transferred	Title V Operating Permit Condition 3, Table 1.d.5.iii and 1.d.5.iv. CO compliance method, CO CEMS.
No. 4.4	transferred / changed	Title V Operating Permit Condition 3, Table 1.d.2.iii, 1.d.6.iii and 1.d.8.iii. Compliance method for PM-10, TSP, VOC and Lead.
No. 4.5	transferred	Title V Operating Permit Condition 3, Table 1.d.7.iii. Compliance method for H_2SO_4.
No. 4.6	transferred	Title V Operating Permit Condition 3, Table 1.d.1.iv.C. Stack test requirement and the requirement to submit "Source Sampling Guidelines and Preliminary Survey Form" at least 30 days prior to stack testing. Title V Operating Permit Condition 3, Table 1.d.1.vi.B, Requirement to report stack test results within 60 days after the testing.
No. 4.7	transferred	Title V Operating Permit Condition 3, Table 1.d.1.iii.E and 1.d.4.iii.B. Compliance method for operational limitations on fuel transfers and NOx control.
No. 4.8 & 4.9	transferred	Title V Operating Permit Condition 3, Table 1.d.1.iii.D and 1.d.1.iv.B. Compliance method for limits on H_2S and TRS content of syngas.
No. 4.10	transferred	Title V Operating Permit Condition 3, Table 1.d.1.vi.A. Requirement to provide the

Table C-2: Combined Cycle Units Regulation No. 2 Operating Permit Conditions Title V Operating Permit Conditions Status as Applicable Requirements		
Permit Condition	**Status of Condition**	**Explanation**
		Department an opportunity to witness all stack and monitor testing.
No. 4.11	transferred	Title V Operating Permit Condition 3, Table 1.d.9.iii. Compliance method for opacity limit. Title V Operating Permit Condition 3, Table 1.e.2.iii. "Facility Wide permit conditions" (Compliance method for odor requirement). Title V Operating Permit Condition 3, Table 1.e.1.ii. "Facility Wide permit conditions" (Compliance method for demonstrating good air pollution control practice and proper operating condition of equipment).
No. 5.1 & 5.2	transferred	Title V Operating Permit Condition 3, Table 1.d.1.v. Requirement to maintain all records necessary for compliance demonstration for 5 years.
No. 6.1	transferred	Title V Operating Permit Condition 3.c.2.ii.B. Requirement to report excess emissions.
No. 6.2	transferred	Title V Operating Permit Condition 3, Table 1.d.1.vi.C. Quarterly excess emissions reports.
No. 7.1	transferred	Title V Operating Permit Condition 2.k, Availability of permit on site.
No. 7.2	transferred	Title V Operating Permit Condition 3, Table 1.d.1.vi.D. Notification prior to making changes at the facility that trigger applicability of CAA Title IV (Acid Rain).
No. 7.3	obsolete	This Reg. 2 permit condition whereby old Reg. 2 permits were superseded is no longer applicable.
No. 7.4	not applicable	This Reg. 2 construction permit expiration date is not applicable to Title V operating permits.
No. 7.5	transferred	Title V Operating Permit Condition 2.b.1. Requirement to comply with the permit conditions.

For the CCUs and Boilers 1 and 3, the facility is required to submit by March 31, 2005 unit-specific numerical (tons per year) emission limits on a rolling twelve (12) month basis. Pending receipt of these emission limits, the Department has currently not imposed design capacities of these units as permit limits. However, if these unit-specific emission limits are not received by March 31, 2005, the Department reserves the right to impose the design capacities of these units as permit limits in the Title V permit.

Regulation No. 4:
This regulation is applicable to all fuel burning equipment with a rated heat input greater than 1 mmBtu/hour. The combustion turbines and the duct burners have rated heat inputs greater than 1 mmBtu/hr, as shown in Table C-3 below. Therefore, they are subject to the particulate matter standard of 0.3 lb/mmBtu (2 hour average) as prescribed by this regulation. *[Reference: Reg. 4, Section 2.1 dated 02/01/81]*

Table C-3: Heat Input Capacities of CCUs

Unit	Emission Point	Unit ID	Rating (mmBtu/Hour)

Combustion Turbine 1	84-1	84-1	827.4 (LHV)
Duct Burner 1	84-1	84-1	215
Combustion Turbine 2	84-2	84-2	827.4 (LHV)
Duct Burner 2	84-2	84-2	215

Compliance Determination Methodology for Regulation No. 4:
The combustion turbines burn only syngas or 0.05 wt% sulfur diesel fuel. The duct burners only combust natural gas. Syngas and diesel fuel sulfur contents are restricted by the permit. Natural gas also has a very low sulfur content. It is reasonable to attribute particulate emissions from these units to the sulfur content in fuel. Furthermore, these units have specific particulate matter limits ranging from 0.0076 to 0.0093 lb/mmBtu depending upon the fuel burned in the turbines and whether or not the duct burner is fired. Therefore, when complying with these permit limits, these units shall be deemed to be in compliance with Regulation 4. *[Reference: Reg. 30 Section 6(a)(3)(i)(B) dated 11/15/93]*

Monitoring:
This regulation does not contain monitoring requirements. In accordance with Regulation No. 30, Section (6)(a)(3)(i)(B) the Department proposes continuously monitoring the sulfur content of syngas, fuel flow rates and heating values, and stack testing for particulate matter as acceptable periodic monitoring. *[Reference: Reg. 30 Section 6(a)(3)(i)(B) dated 12/11/00]*

Recordkeeping:
Records documenting all monitoring and stack testing results in addition to complying with the general record keeping requirements of Condition 3(b)(2) of the attached permit. *[Reference: Regulation No. 30 Section 6(a)(3)(ii) dated 12/11/00]*

Reporting:
A minimum of 30-day advance notice of all monitor and stack testing, and submittal of testing results within 60 days after testing is required. Quarterly reports of excess emissions are also required.

Regulation No. 8:
Regulation No. 8 stipulates that no person may combust any fuel with a sulfur content greater than 1 percent by weight and any distillate fuel oil with a sulfur content greater than 0.3 percent by weight. These units only combust syngas, natural gas or low sulfur (0.05 wt% sulfur) diesel fuel. The syngas sulfur content requirement of 508 ppmvd (24-hour average) and 480 ppmvd (12-month average) is more stringent than the requirements of Regulation No. 8. Similarly, the natural gas sulfur content (~ 0.002 grains/scf per AP-42) and the permit limit of 0.05% sulfur in diesel fuel are also less than this regulatory limit. Therefore, no additional requirements are proposed here. *[Reference: Reg. 8, Section 2.1 dated 05/09/85]*

Regulation No. 12:
Regulation No. 12 is applicable for all fuel burning equipment with a rated heat input greater than 15 mmBtu/hour at a major source NOx emissions. As shown in Table C-3, the combustion turbines and the duct burners have rated heat input capacities greater than 15 mmBtu/hour. Therefore, these units are subject to Regulation 12. *[Reference: Reg. 12, Section 3 dated 11/24/93]*

For combustion turbines, a NO_x RACT emission limit of 42 ppm @ 15% O_2 applies when burning gas and

88 ppm @ 15% O_2 when burning oil. *[Reference: Reg. 12, Section 3.5 dated 11/24/93]*

Compliance Determination Methodology for Regulation No. 12:
The CCU's are subject to LAER (see **Regulation No. 25** below). The LAER determination ensures that the NOx emissions will not exceed 15 ppmvd @ 15% O_2 when firing syngas and 42 ppmvd @ 15% O_2 when firing diesel fuel. These limits are in compliance with Regulation No. 12.

Monitoring and Testing:
Regulation No. 12 requires CEMS or other Department-approved method for monitoring NOx emissions. The CCU's are subject to NOx Budget Trading Program (see **Regulation No. 39** below) which requires CEMS to track NOx emissions. These CEMS will be used to comply with the NOx emission limits.

Recordkeeping:
The Company shall maintain the NOx CEMS data for at least five (5) years, in addition to complying with the general recordkeeping requirements of Condition 3(b)(2) of the attached permit *[Reference: Reg. 30 Section 6(a)(3)(ii) dated 12/11/00]*

Reporting:
The Company is required to provide to the Department a 30-day advance notice of monitor testing and to submit a "Source Sampling Guidelines and Preliminary Survey Form." Quarterly excess emissions reporting is also required.

Regulation No. 14:
The Company shall not cause or allow the emission of visible air contaminants and/or smoke from any emission unit, the shade or appearance of which is greater than twenty (20) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour period or more than fifteen (15) minutes in any twenty-four (24) hour period. *[Reference Reg. 14 Section 2.1, dated 7/17/84 and Regulation No. 2 Operating Permits, dated 06/01/97]*

Compliance Determination Methodology for Regulation No. 14:
The CCU's will primarily combust syngas, with diesel fuel as backup. While Regulation No. 20 (NSPS) requires Continuous Opacity Monitoring System (COMS) for equipment greater than 250 mmBtu/hr, gas combustion is exempt from this requirement. Furthermore, the Company has provided a vendor guarantee that opacity will not be exceeded when combusting diesel fuel. The CCU's also have specific PM emission limits that must be met. The Department agrees that under normal operating conditions there should be no opacity exceedances. However, under upset conditions or during fuel transfer from syngas to diesel fuel, there is may be a chance for opacity exceedances. Therefore, while COMS are not being required at this time, the permit requires quarterly testing using EPA Method 9 in accordance with Section 1.5(c) of Regulation No. 20. The Department also reserves the right to require more frequent testing or installation of COMS if opacity exceedances are observed.

Monitoring/Testing:
Quarterly testing using EPA Method 9.

Record Keeping:
The Company shall maintain the opacity readings for at least five (5) years, in addition to complying with the general recordkeeping requirements of Condition 3(b)(2) of the attached permit *[Reference: Reg. 30 Section 6(a)(3)(ii) dated 12/11/00]*

Reporting:
The Company is required to submit quarterly excess emissions reports to the Department showing any observed opacity exceedances.

Regulation No. 20 and 40 CFR 60 Subpart Db:
This NSPS regulation requires NOx limit of 0.20 lb/mmBtu for the duct burner. *[Reference: Regulation No. 20, Section 26 dated 12/07/88 and 40 CFR 60 Subpart Db Section 60.44b(a)(4)(i)]*

Compliance Determination Methodology for Regulation No. 20 and 40 CFR 60 Subpart Db:
This unit is subject to LAER (see **Regulation No. 25** below). The LAER limit is more stringent than this NSPS limit. Therefore, no additional requirements are proposed here.

Regulation No. 20 and 40 CFR 60 Subpart J:
This NSPS regulation requires that no owner or operator subject to the provisions of this subpart shall burn in any fuel gas combustion device any fuel gas that contains hydrogen sulfide (H_2S) in excess of 230 mg/dscm (0.10 grain/dscf). The combustion in a flare or process upset gases or fuel gas that is released to a flare as a result of relief valve leakage or other emergency malfunctions is exempt from this paragraph.. *[Reference: Regulation No. 20, Section 11 dated 11/27/85 and 40 CFR 60 Subpart J Section 60.104(a)(1)]*

Compliance Determination Methodology for Regulation No. 20 and 40 CFR 60 Subpart Db:
The Company is required to continuously monitor the H2S content of syngas burned in the combustion turbines. However, the Company has made an argument that syngas is not subject to this NSPS because gasification and syngas as fuel were not considered in the final rule establishing this NSPS. The Company has argued that it would be impossible to meet this NSPS for syngas on a short term basis (3-hour rolling average) and has offered to formally request the EPA Administrator to make an applicability determination. Therefore, the Department has included a permit condition that in the event the Administrator makes a determination of non-applicability of 40 CFR 60.104 (a)(1) to the combustion of syngas, the Company shall submit an application to amend this permit to remove the requirements for H_2S monitoring and reporting. In the interim, the Company has agreed to comply with this NSPS.

Monitoring/Testing:
Continuous monitoring of H_2S content of syngas is required. The H_2S monitor is subject to the applicable performance specification, QA/QC and RATA requirements. This condition will be removed upon request by the Company after a non-applicability determination by the Administrator (discussed above).

Recordkeeping:
All 3-hour rolling hour averages of monitored H_2S content in syngas shall be maintained for at least five (5) years.

Reporting:
The Company shall provide the Department opportunity to witness all monitor certification testing. Quarterly excess emissions reporting is also required.

Regulation No. 20 and 40 CFR 60 Subpart GG:
This NSPS regulation requires that no owner or operator subject to the provisions of this subpart shall burn in any stationary gas turbine any fuel which contains sulfur in excess of 0.8 weight percent. *[Reference: Regulation No. 20, Section 10 dated 11/27/85 and 40 CFR 60 Subpart GG Section 60.333(b)]*

Compliance Determination Methodology for Regulation No. 20 and 40 CFR 60 Subpart GG:
The fuels burned in the combustion turbine, i.e., syngas and low sulfur diesel fuel , are both limited in their sulfur content to well below this NSPS limit. Therefore, no additional requirements are proposed here.

Regulation No. 25:
Each CCU is a major new source that has a PTE to emit greater than 25 TPY NO_x. Therefore, it was subject to the NSR requirements in Section 2 of this regulation, i.e, the application of a control measure that meets LAER requirements and to provide for offsets at the rate of 1.3 : 1. *[Reference*: *Regulation 25, Section 2 dated 1/11/93]*

Compliance Determination Methodology for Regulation No. 25:
Each CCU has permitted NO_x emission limit as given below:

Scenario	Proposed Limit ppmvd @ 15 % O_2
CCU on syngas without duct firing	15
CCU on syngas with duct firing	18
CCU on LSDF without duct firing	42
CCU on LSDF with duct firing	39

In addition, NO_x emissions from each CCU shall not exceed 360 TPY. The combined NO_x emissions from the CCUs and Boiler Nos. 1, 2 and 3 shall not exceed 1,261 TPY. In no event shall the NO_x emissions from any of the boilers exceed their respective baseline emission levels, i.e, 772 TPY for Boiler No. 1, 804 TPY for Boiler No. 2 and 808 TPY for Boiler No. 3.

The concentration based emission limits were based on a LAER analysis and required offsets were provided on 1.3:1 basis.

Regulation No. 39:
Regulation No. 39 contains the provisions of the NOx Budget Trading Program, which is a cap-and-trade program designed to help reduce overall NOx emissions. Both CCU's at Premcor are NOx budget sources and therefore must maintain sufficient allowances to cover their actual NOx emissions during the ozone season (May 1 through September 30 of each year). An allowance is a limited authorization to emit one ton of NOx during the ozone season. The allowances are held in the source's compliance account or the overdraft account. *[Reference: Reg. 39, Section 2 dated 12/11/00]*

Compliance Determination Methodology for Regulation No. 39:
The CCU's have been allocated zero (0) allowances under the NOx budget trading program. Each year, the Company is required to determine its actual emissions of NOx during the ozone season (May through September). Compliance is achieved if the total actual emissions are less than the allowances held by the Company in its compliance and/or the overdraft accounts. If sufficient allowances are not available, the Company has until the end of November to purchase additional allowances from the trading market to cover their actual emissions.

Monitoring & Testing:

The actual NOx emissions during the ozone season shall be determined via CEMS. The CEMS are subject to the applicable performance specification, QA/QC and RATA requirements.

Recordkeeping:
All records pertaining to the NOx Budget Trading Program, such as the emissions monitoring information, any reports or certifications submitted under this program, and documents used for compliance demonstration, shall be maintained on site at the facility for at least five (5) years.

Reporting:
In addition to the reporting requirements that apply to the NOx CEMS discussed above, the Company is also required to submit certain reports and certifications required under Regulation No. 39, Sections 8 and 11.

D. **Facility-wide Requirements**

Regulation No. 14:
No person shall cause or allow the emission of visible air contaminants and/or smoke from a stationary or mobile source, the shade or appearance of which is greater than twenty (20%) percent opacity for an aggregate of more than three (3) minutes in any one (1) hour or more than fifteen (15) minutes in any twenty-four (24) hour period. *[Reference: Regulation No. 14, Section 2.1 dated 7/17/84]*

Compliance Determination Methodology for Regulation No. 14:
Compliance is demonstrated in accordance with Section 1.5(c) of Regulation No. 20 (NSPS).

Monitoring/Testing:
Monitoring required per Regulation No. 20, Section 1.5(c).

Recordkeeping:
Observation records of all monitoring shall be maintained on site.

Reporting:
Condition 3(c)(2) of the attached permit requires reporting of any exceedance of the standard.

Regulation No. 17:
Any person who installs monitoring equipment to comply with this regulation shall demonstrate compliance with performance specifications set forth in Appendix "B", 40 CFR Part 60, dated July 1, 1982 which are hereby adopted by reference. *[Reference: Regulation No. 17, Section 4 dated 7/17/84]*

Compliance Determination Methodology for Regulation No. 17:
The Company will install NOx, SO_2 and CO_2 CEMS on these units. The appropriate permit conditions that have been included in the permit to address the Quality Assurance and Quality Control measures are more stringent than that imposed by the Performance Specification in 40 CFR 60. Therefore, no additional conditions have been proposed here.

Regulation No. 19:
No person shall cause or allow the emission of an odorous air contaminant such as to cause a condition of air pollution. This regulation is State-enforceable only. *[Reference: Regulation No. 19, Section 2.1 dated 2/1/81]*

Compliance Determination Methodology for Regulation No. 19:
This source has potential for odors. Therefore, the following condition has been included in the permit:

> Odors from this source shall not be detectable beyond the plant property lines in quantities which cause a condition of air pollution as "air Pollution" is defined in Regulation 1 of Delaware's Regulations Governing the Control of Air Pollution.

Monitoring/Testing:
The monitoring of odor includes, but is not limited to, scentometer tests, air quality monitoring, and affidavits from affected citizens and investigators.

Recordkeeping:
Records of all monitoring/testing shall be maintained on site.

Reporting:
Condition 3(c)(2) of the attached permit requires reporting of any exceedance of the standard.

V. Future Applicable Requirements:

The following future applicable requirements are relevant:

40 CFR Part 64 - Compliance Assurance Monitoring: Because a complete application was submitted prior to April 19, 1998, this regulation will become applicable upon renewal of this Regulation 30 Operating permit.

VI. Compliance Schedule:

There is no applicable compliance schedule associated with this part (i.e., Part 3) of this permit.

VII. Permit Shield:

Regulation No. 30 Section 6(f)(1) of Regulation No. 30 makes provision for a source to request the Department to include, in the Part 70 Permit, a provision stating that compliance with the terms and conditions of the Permit shall constitute compliance with **7 Del. C.**, Chapter 60, for the discharge of any air contaminant specifically identified in the permit application as of the day of permit issuance...the ***"Permit Shield."*** Certain conditions and sections of Regulation No. 30 do not qualify for the Permit Shield, and are so designated. Regulation No. 30 Section 6(f)(2) allows the Department to deny, in whole or in part, a Permit Shield requested pursuant to Regulation No. 30 Section 6(f)(1).

In accordance with Regulation No. 30 Section 6(f)(2) the Department is denying the permit shield request for non-applicable requirements. The Department is not granting the permit shield for any company in Delaware for non-applicable requirements because of the quantity of data which would be required to ensure that requirements were indeed not applicable.

Furthermore, the Department is denying Premcor's request for a permit shield requested in Section 13 of Part 1 of 3 of the AQM-1001Series Application, because specific narrative descriptions for each affected unit have not been identified as described in the *"Supplemental Instructions, Review Criteria and Completeness Checklist"* document of January 3, 1996.

For example:

- An acceptable Permit Shield request for a shop degreaser subject to Regulation No. 24, Section 33, is:

  "*XYZ Corporation requests that, for Emissions Unit No. 2, **[**two (2) shop degreasers**]**, compliance with the terms and conditions of a permit issued pursuant to Regulation No. 30 shall constitute compliance with Regulation No. 24, Section 33."*

- Note that a request for a Permit Shield to cover, for example, Emissions Unit No. 80 from all of the State of Delaware **"Regulations Governing the Control of Air Pollution"**, or from the entire Regulation No. 24, does not, standing alone, describe a specific applicability and/or non-applicability determination, and is not acceptable.

  [Reference Regulation No. 30, Section (6)(f)(3), dated 11/15/93]

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pc: Dover Title V File
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